as being simple to use: measurements are given in inches vice metric units; some terms are simplified; and fewer species are treated. Otherwise, key leads seem similar to those in Hitchcock and Cronquists' *Flora of the Pacific Northwest*. Absent are remarks about herbaria and their use in plant systematics; nor is there acknowledgment to regional works that make local guides possible.

Topical essays are located in the body of the keys, apparently to minimize technical reading burdens for laymen. Topics appear in random order and are not indexed. It may be diversionary and undemanding to stumble across the essays, but for interested persons it is a burden.

A discussion on plant habitats is general and loose. Specific features—dune, salt marsh, rain forest—are mentioned for western Washington, but for elsewhere the authors revert to geologic provinces and Merriam's life zones. Life zone maps were taken from C.V. Piper's *Flora of the State of Washington*, 1906. Franklin and Dryness' *Natural vegetation of Oregon and Washington* (USDA For. Ser. Tech. Rept. PNW-8, Portland, 1973) apparently was not consulted, but Daubenmires' *Forest vegetation of eastern Washington and northern Idaho* (Wash. Agr. Expt. Sta. Bull. 60, 1968) is mentioned.

Statements such as, "Technical manuals treating the flora of Washington are for the most part sparsely illustrated", strain credulity in view of two major illustrated floras for the area. Another, ". . . grouping by flower color is not feasible, as there are relatively few flower colors", overlooks Philip Munz' guides to California wildflowers, and Peterson and McKennys' *A field guide to wildflowers of northeastern and northcentral North America,* 1968.

Responsibilities for deficiencies in *Washington wildflowers* belong to the professionals who authored the book, not the well-intentioned sponsors or enthusiasts who encouraged the production. Unfortunately, an unsuspecting public may bear the cost.—Earle F. Layser, Nez Perce National Forest, Grangeville, Idaho 83530.

Profiles of California vegetation. By William B. Critchfield. 54 pp., 1 fig., 57 profiles. U.S.D.A. Forest Service Research Paper PSW-76. 1971. $2.50.

The distribution of forest trees in California. By James R. Griffin and William B. Critchfield. 114 pp., 3 figs., 84 maps. U.S.D.A. Forest Service Research Paper PSW-82. 1972. $1.75. Both available from Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

These two volumes are contemporary compilations based largely on results of the California Vegetation Type Map Survey (VTM) conducted by the U.S. Forest Service some 35 years ago. The history of this ambitious project, which involved field mapping of dominant vegetation and extensive documentation with herbarium specimens, is briefly described in each publication. Both are of great potential usefulness to those engaged in ecological studies in the forested portions of California and the Lake Tahoe-Sierran corner of Nevada, which also came under jurisdiction of the VTM survey. These publications are avowedly of limited or no usefulness in the transmontane deserts of the south and the Great Basin intrusions of the north of California. With these exceptions, the two volumes, together with the original published vegetation type maps (see Madroño 22:153), provide a very good picture of forest and other vegetation in much of California in the 1930's. It is hardly surprising that vast changes have occurred in California's vegetation in the four intervening decades, but it is very lucky for those investigating these changes that such thorough evidence from the past is available for comparison.

The bulk of the first publication is devoted to 57 elevational profiles with vegetation symbols, representing north-south or east-west transects of quadrangles surveyed by VTM teams. They were drafted by M. N. Dobrotin to accompany maps of

these quadrangles as published. Of the profiles reproduced here, only fourteen actually accompanied maps, so the majority were previously unpublished. The great length of the profiles (about 23–63 km long at 0.77–1.3 km per cm) is accommodated by a folded page format that reduces shelf dimensions to a manageable 26 × 20 cm. The VTM survey used 15-minute and 30-minute topographic quadrangles as their base maps and numbered these in a common sequence from north to south, but profiles of the two groups are separated in this publication. The dual numerical sequence thus created is confusing to some users but is perhaps justifiable considering the difference of scale between the series. Critchfield has enhanced the value of the profiles by providing interpretive tables for the pictographic and alphabetic vegetation symbols appearing in them and by compiling a table of dominant species represented, with their occurrence. One can only be sorry that the excellent detail of the original pictorial symbols has been obscured in the necessary reduction to book size, but their intent is plain enough. All told, these profiles are an admirable representation of vegetation in relation to geographical and topographical features and present a three-dimensional view of California's vegetation that is hard to find elsewhere.

Maps and descriptions of natural distributions of 86 tree species in California and the VTM portion of Nevada comprise the second publication. Though also largely based on data of the VTM survey and its successor, the California Soil-Vegetation Survey, the authors have compiled their maps and descriptions from a much wider range of sources, as their bibliography of some 250 items attests. The maps show detailed, documented distributions that indicate gaps in our knowledge as clearly as known localities. These are a far cry from the overly generalized, poorly drafted maps compiled for volume 1 (1971) of E. L. Little's *Atlas of United States trees* and hark back instead, to the meticulous maps prepared under the direction of George B. Sudworth (1861–1927) to accompany his bulletins on Rocky Mountain trees. Similarly, the verbal descriptions, which discuss elevational, taxonomic, and ecological matters, are reminiscent of Sudworth's painstaking distributional observations in *Forest trees of the Pacific Slope* (1908), though they plainly show the expansion of knowledge since then, and the references show that accuracy in delimiting distribution can no longer be the result of field experience by one man. While being very favorably impressed by the care the authors have taken in assembling this very valuable compilation (they worked with the printers for over a year before they were satisfied with the printed quality of the maps), inevitable errors have crept in. *Plantanus racemosa* is a simple typographical error, but most of the localities shown for *Populus angustifolia* are probably based upon misidentifications. There are some places for differences of opinion. *Castanopsis chrysophylla* should probably be transferred to *Chrysolepis* Hjelmqvist (1948, cited in their bibliography). One questions the omission of tree willows, for they are often quite important in riparian vegetation, and, while VTM crews ignored them in mapping, their specimens are readily accessible in UC. Blind acceptance of C. B. Wolf's splinter species of *Cupressus* (Aliso 1:1–250, 1948) seems unwarranted but, pending critical evaluation, is perhaps preferable to E. L. Little's irrational groupings (Phytologia 20:429–445, 1970). Personal preferences aside, Griffin and Critchfield have done a fine job, and these two paperbound volumes can well serve the general public and environmental interest groups, as well as botanists and foresters.—James E. Eckenwalder, Department of Botany, University of California, Berkeley 94720.